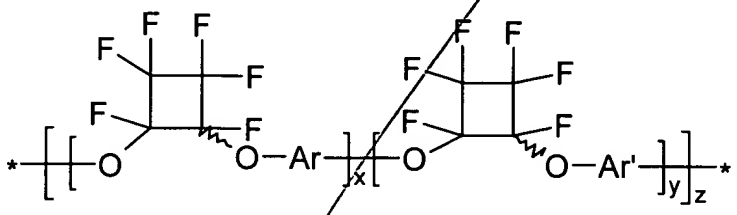
CLAIMS

What is claimed is:

1. (Currently Amended) A method of making an optical device, comprising:

(a) providing a copolymer composition having a solids content of greater than 50%, the composition containing a copolymer having the structural formula:

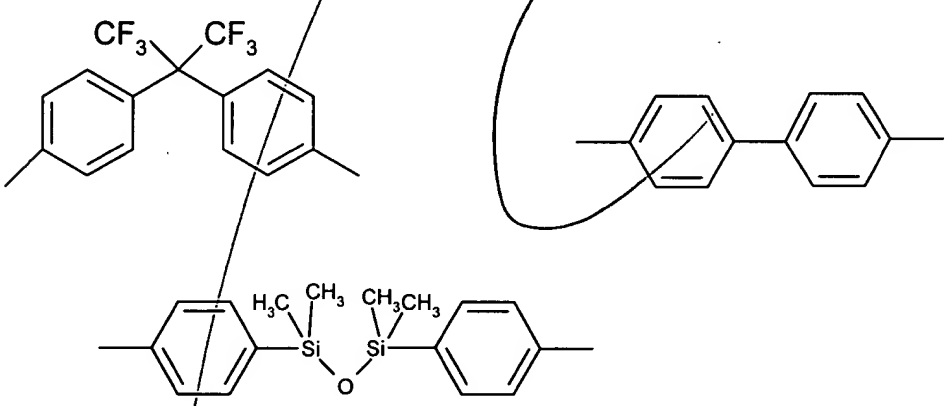


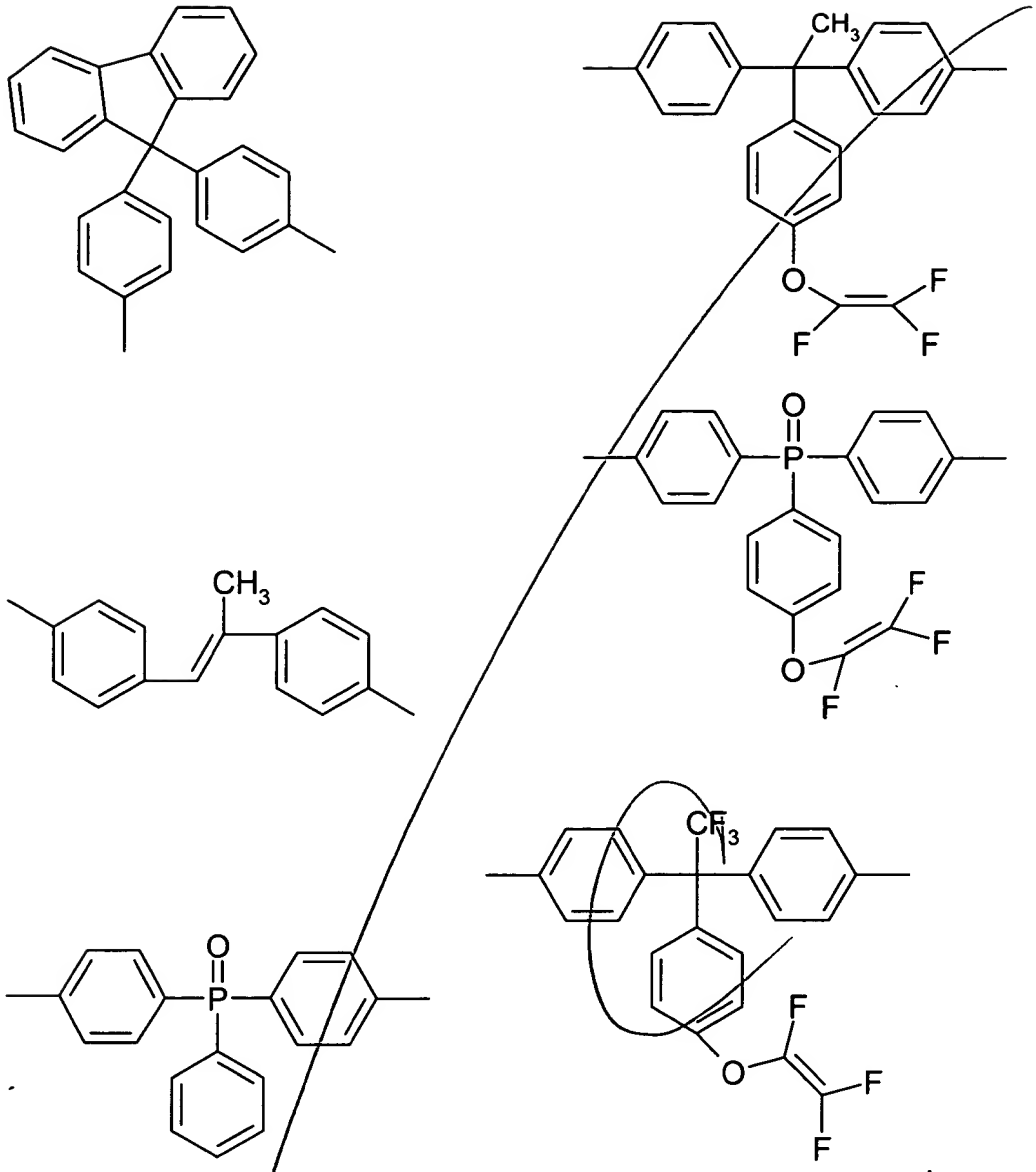
wherein Ar does not equal Ar',

wherein z is greater than or equal to 2, and

wherein x and y each are greater than or equal to 1, respectively, and

wherein the Ar and the Ar' groups each comprise substituted or nonsubstituted aryls selected from the group comprising:





B1 cont.

(b) applying the copolymer composition by spin coating to form a first film of an optical device.

2. (Previously Amended) The method of claim 1 in which at least one of Ar and Ar' is a trifluorovinyl aromatic ether.

3. (Cancelled)

4. (Cancelled)

5. (Original) The method of claim 1 in which the copolymer composition is dissolved in a solvent prior to coating the copolymer composition.

6. (Previously Amended) The method of claim 1 comprising the additional step of thermally curing the first film to form a cured thermoset film.

7. (Original) The method of claim 6 in which the thickness of the thermoset film is at least about 0.6 microns.

8. (Original) The method of claim 6 in which the thickness of the thermoset film is at least about 0.8 microns.

9. (Original) The method of claim 6 in which the thickness of the thermoset film is at least about 0.9 microns.

10. (Original) The method of claim 6 in which the thickness of the thermoset film is at least about 1 micron.

11. (Original) The method of claim 6 in which the thickness of the thermoset film is at least about 2 microns.

12. (Original) The method of claim 6 in which the thickness of the thermoset film is at least about 3 microns.

13. (Original) The method of claim 6 in which the thickness of the thermoset film is at least about 4 microns.

B1 cont.

14. (Original) The method of claim 6 in which the thickness of the thermoset film is at least about 5 microns.

15. (Original) The method of claim 6 in which the thickness of the thermoset film is at least about 10 microns.

16. (Currently Amended) A method of making an optical device, comprising:

(a) providing a perfluorocyclobutyl-based copolymer composition having a solids content of greater than 50%,

(b) coating the perfluorocyclobutyl-based copolymer composition upon a substrate to form a first film, and

(c) thermally curing the first film to form a thermoset film, in which the thermoset film comprises a substantially transparent polymeric core of an optical waveguide.

17. (Cancelled)

18. (Currently Amended) The method of claim ~~17~~ 16 comprising the additional step of applying cladding comprising a perfluorocyclobutyl-based copolymer to the outer surface of the core.

19. (Original) The method of claim 16 in which the coating step is accomplished by spin coating.

20-21. Cancelled

22. (Original) The method of claim 16 in which the perfluorocyclobutyl-based copolymer composition is applied to the substrate in a solution having at least about 60% solids by weight.

23. (Original) The method of claim 16 in which the perfluorocyclobutyl-based copolymer composition is applied to the substrate in a solution having at least about 70% solids by weight.

24. (Original) The method of claim 16 in which the cured film comprises a thickness of at least about 1 micron.

25. (Original) The method of claim 16 in which the cured film comprises a thickness of at least about 2 microns.

26. (Original) The method of claim 16 in which the cured film comprises a thickness of at least about 3 microns.

27. (Cancelled)

28. (Currently Amended) A method of making an optical device, comprising:

~~(a)~~ providing a first perfluorocyclobutyl-based copolymer composition,

~~(b)~~ spin coating the first perfluorocyclobutyl-based copolymer composition upon a substrate to form a first film, wherein the first film forms a substantially transparent polymeric core,

~~(d)~~ providing a second ~~perfluorocylcobutyl~~ perfluorocyclobutyl-based copolymer composition different than the first perfluorocyclobutyl-based copolymer composition, and

~~(e)~~ spin coating the second perfluorocyclobutyl-based copolymer ~~compostion~~ composition upon the first film, wherein the second film forms a polymeric clad.

29. (Previously Amended) An optical device constructed by the method of:

(a) providing a perfluorocyclobutyl-based copolymer composition having a solids content of greater than 50%,

(b) spin coating the perfluorocyclobutyl-based copolymer composition upon a substrate to form a first film, wherein the first film forms a core for an optical device having a cured film thickness of at least about 0.6 microns.

30. (Cancelled)

31. (Cancelled)

32. (Cancelled)

33. (Previously added) The method of claim 1, wherein the first film is a core of an optical device.

34. (Previously added) The method of claim 33, further comprising:

(c) providing a second composition having a solids content of greater than 50% comprising a perfluorocyclobutyl-based copolymer,

B1 cont.

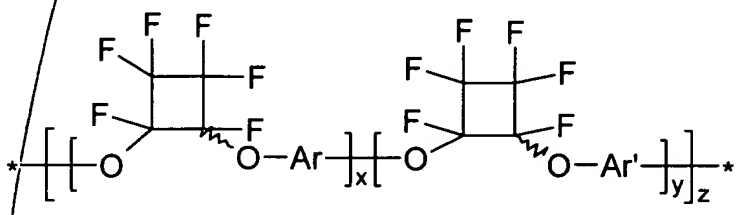
(d) applying the second copolymer composition to the first film to form a second film, wherein the second film is a clad in an optical device.

35. (Previously added) The method of claim 1, wherein the thickness of the first film is between about 10 and about 50 microns.

36. (Previously added) The method of claim 16, wherein the thickness of the thermoset film is between about 10 and about 50 microns.

37. (Currently amended) The method of claim 28, wherein the first ~~cured~~ film and the second ~~cured~~ film are each about at least about 10 microns thick.

38. (Previously added) The method of claim 28, wherein the first and second copolymer compositions comprise perfluorocyclobutyl-based copolymers having the structural formula:



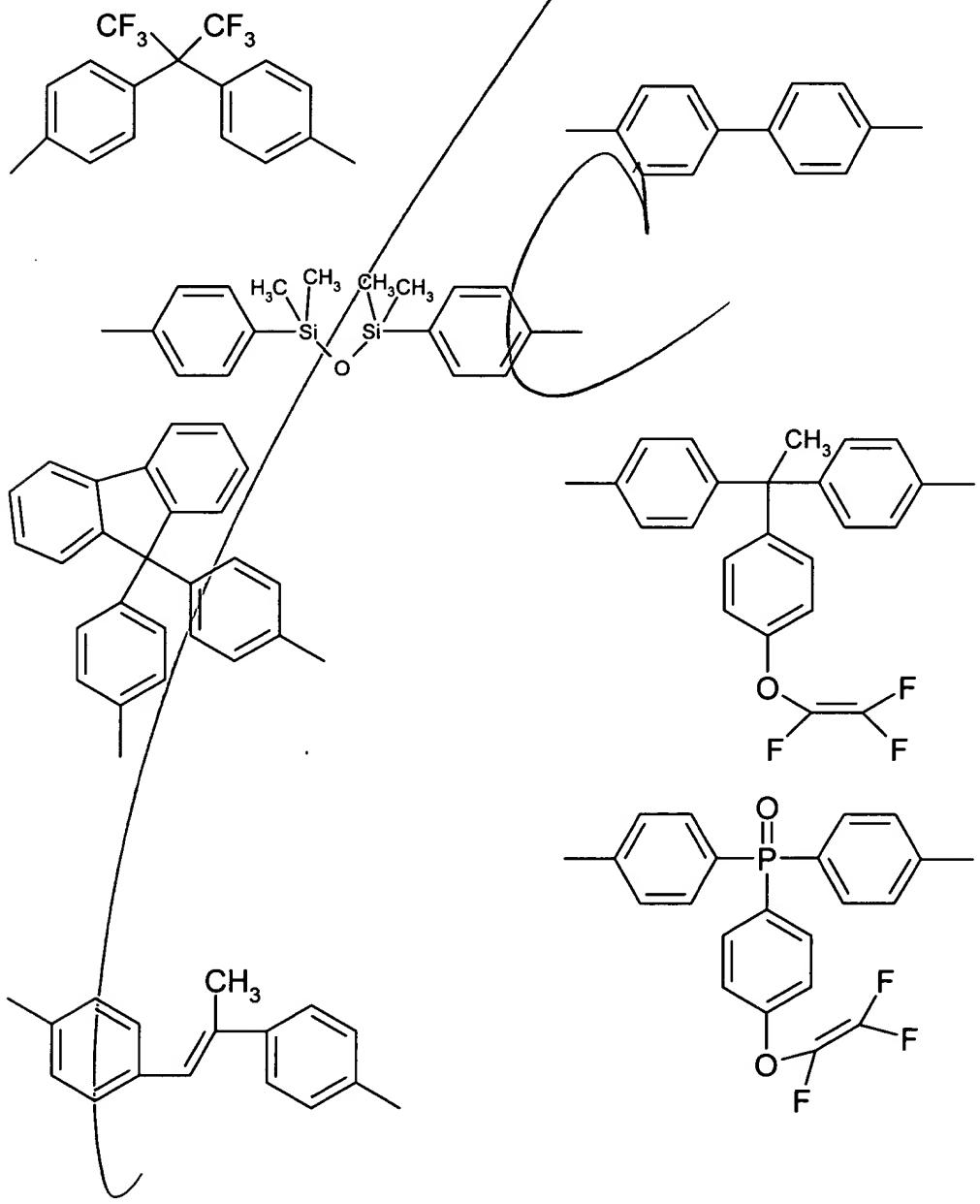
wherein Ar does not equal Ar',

wherein z is greater than or equal to 2, and

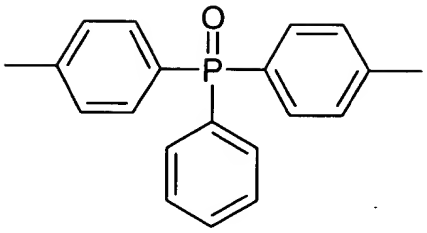
wherein x and y each are greater than or equal to 1, respectively.

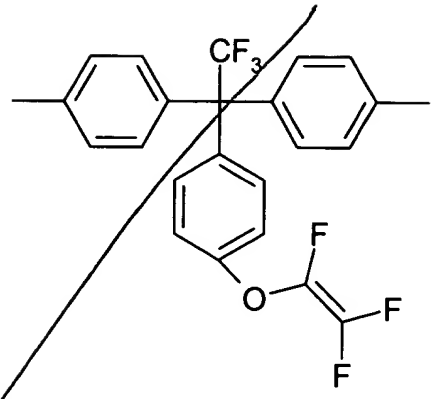
39. (Previously added) The method of claim 38, wherein at least one of Ar or Ar' is a trifluorovinyl aromatic ether.

40. (Currently Amended) The method of claim 38, wherein the Ar and the Ar' groups each comprise substituted or nonsubstituted aryls selected from the group ~~comprising~~ consisting of:



B' cont.





, and

41. (Currently amended) The ~~method~~ optical device of claim 29, the method of constructing the optical device further comprising forming a second film on the core, the second film comprising a thermoset perfluorocyclobutyl-based copolymer, wherein the second film is a clad for ~~an~~ the optical device having a cured film thickness of at least about 0.6 microns.

42. (Currently amended) The ~~method~~ optical device of claim 41, wherein the first film and the second film each have a thickness of at least about 5 microns.

43. (Currently amended) The ~~method~~ optical device of claim 41, wherein the first film and the second film each have a thickness of at least about 10 microns.

44. (Currently amended) The ~~method~~ optical device of claim 41, wherein the first film and the second film each have a thickness between about 10 and about 50 microns.

45-47. (Cancelled)